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THE  
EDISON

INCANDESCENT  
ELECTRIC  
LIGHT

*Its superiority  
to all other  
illuminants.*

*Incandescent electric light*



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AND  
ELECTRONICS

# THE EDISON INCANDESCENT ELECTRIC LIGHT.

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ITS SUPERIORITY

TO ALL OTHER ILLUMINANTS.

WILLIAM H. HARRIS  
STATIONER  
NEW YORK



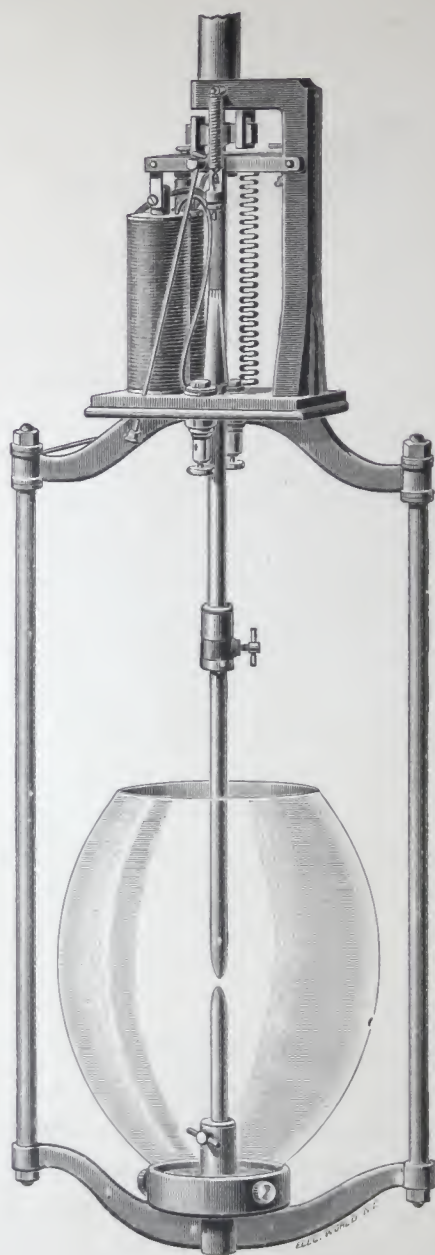
## INTRODUCTION.

FROM early ages, until recent date, the improvement in the quality of artificial light has been very slow. The advent of more light, by the general introduction of gas and petroleum, was accompanied by conditions less favorable to health during the hours when artificial light was required. Sunlight exercises a subtle influence upon our bodies. The combination of heating and chemical rays which, when analyzed by the solar spectrum form the pure white light of daylight, is essential to the healthful existence of all animal and vegetable organization. All artificial lights, whether produced by combustion, as in the case of candles, oil, petroleum or gas, or whether by the agency of electricity, produce heat; but a 16 candle Edison lamp gives only one-twelfth the heat of an ordinary five foot gas burner. All these illuminants, however, with the exception of electricity, not only generate heat, but consume the oxygen in the air and load it with carbonic acid, sulphur and other compounds greatly injurious to the health and general comfort of the body.

It has been estimated by Prof. Tyndall and other scientists that one five-foot gas burner will consume as much oxygen as nine human beings.

To those who have given intelligent consideration to the subject, it is a well known fact that every hour of a man's life spent in a room lighted by gas tends to shorten that life and abridge his powers of work, and when such a fact becomes generally accepted, as it certainly will be in the near future, the adoption of the electric light will be as universal as other arrangements essential to the preservation of health.

*Revolving use at*



## THE ARC LIGHT.

TO the majority of people the term electric light conveys but one impression: A very bright light that flickers and hurts the eyes; an exaggerated point of brilliancy, commonly used for the lighting of our thoroughfares.

The public first became acquainted with electricity as an illuminator in the form of the arc lamp, located in scattered points, of great intensity, on short street posts or grouped on towers at a few prominent centers. Later on, the arc light lofty found its way into mills, shops, railway stations, parks and other large interior and exterior areas. It was soon discovered, however, that these lamps could not successfully compete with gas, and could not be tolerated for general interior illumination, or for domestic uses, and there was a wide-spread feeling of disappointment that the new discovery must, of necessity, be of limited value and service for purposes of general illumination.

The arc and incandescent systems of electric lighting are radically different and distinct, a fact which must be borne in mind when considering the question of what is popularly called electric lighting. The arc light is of great intensity—each lamp being the result of about one horse power of energy condensed in one small point—is very dazzling and trying to the eye, and from the very nature of its mechanism is unsteady, flickering and changeable. Its lack of economy is due in part to the great amount of energy condensed in so small a point, the



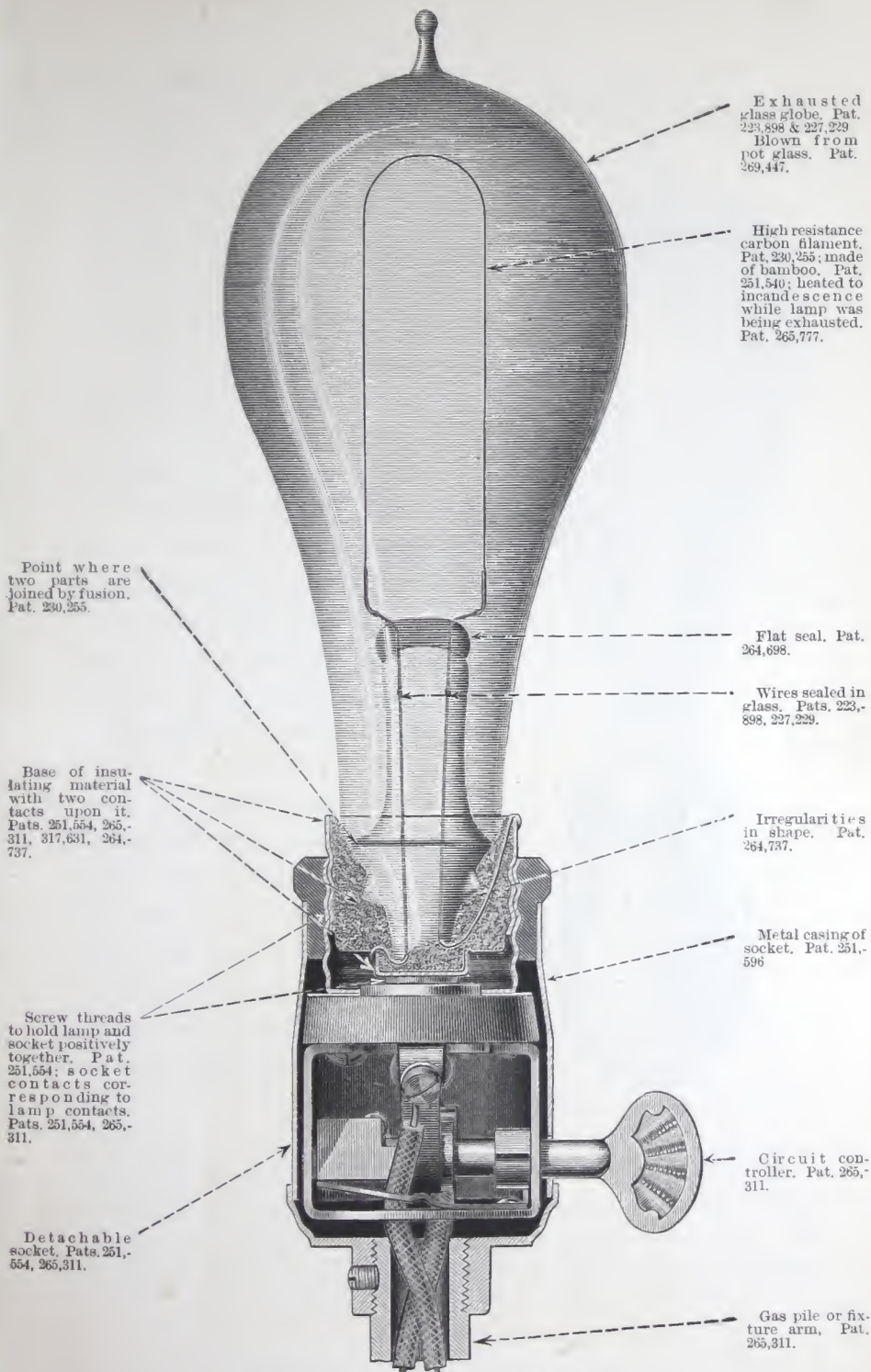
diffusive power of the light, not being at all in proportion to its intensity, or, technically speaking, the volume of light decreasing inversely as the square of the distance.

These lights are produced by the passage of an electric current of high tension between the points of two slightly separated pencils of carbon, the action of the current causing the upper carbon to waste away in such a manner as to always have a concavity or crater at its point, which, acting like a reflector, throws the greater portion of the light downward. The lower carbon in this case has a mushroom-like protuberance located directly opposite to the crater of the upper carbon. The strong light of this form of lamp is the result of the combined effort of the arc, formed by the passage of the electricity through the air between the carbon points, the incandescent state of the latter, and the glowing particles of carbon detached from the upper carbon by the action of the current.

The condition of the carbon while the light is in operation is clearly shown in the accompanying cut.







THE EDISON LAMP.

While this type of electric light has its uses for lighting parks, avenues and large open spaces, it unquestionably has defects, not



the least of which is its unsteadiness, more pronounced and objectionable by reason of the extreme brightness of the light being alternately increased and diminished; this fault being inherent in all forms of the arc lamps.

Intense shadows cast wherever a projection or depression interrupts the rays, and the presence at one point of a volume of light so great as to be painful to the eye, while a few feet away we have a low degree of illumination, which by contrast seems to be intense darkness, is far from a desirable form of illumination even for exteriors.

Where the arc lamp is used for lighting interiors, its defects become more manifest. Nevertheless these lights have many attractions and are in more or less demand, and can be furnished from the regular Edison central station circuits to those who re-

quire them for any special purpose.

### THE EDISON INCANDESCENT LIGHT.

IN entering upon his work of investigation and invention in connection with the electric light, it was the purpose of Mr. Edison to so control it as to make possible and profitable its use



wherever gas was employed, and, more than that, to adapt it to a multitude of uses and positions, where gas could not be made available.

Edison's conception of an incandescent lamp was that its value should be represented in the carbon which should necessitate no expense of inspection or attention until its life was finally ended, and that with the exhaustion of this vitality, the shell remaining might be thrown away.

In the incandescent electric lamp we have a source of light free from the faults and possessing advantages foreign to either the arc light or gas.

With these lamps, light may be distributed more uniformly ; they can be furnished of a brilliancy ranging from one to one hundred candles or, by grouping, may be made to equal or even excel the arc ; in any and all cases the light is free from every form of unsteadiness, and where properly installed, is utterly devoid of every element of danger to life or property.

The incandescent light is soft, steady and brilliant, and not garish or dazzling.

It is the light of the present and the future, and the system under which it is produced combines, in the highest degree all the elements necessary to successful artificial illumination, viz ; safety, convenience, healthfulness and economy.

The Edison lamp is constructed as follows :

In a pear-shaped glass globe is fixed a loop of carbonized bamboo fibre. In the process of carbonization the natural cellular condition of the bamboo is not interfered with, and the fibre is thus obtained highly elastic, tough, and of great electrical resistance.

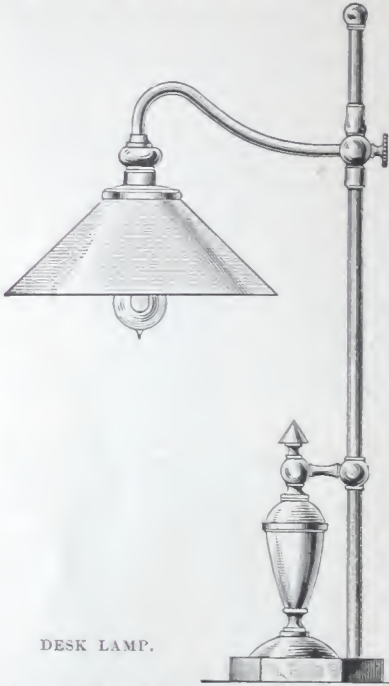
The glass globes are exhausted of air to a high degree, and securely sealed to maintain the high vacuum thus obtained. The carbon fibre is rendered incandescent by the opposition which it offers to the current passing through it, and thus emits a soft



mellow light, absolutely steady and equal to or exceeding in brilliancy the illuminating power of a jet of gas of the best quality.

With the use of this form of lamp, the absolute subdivision of the electric current into various units of light is perfectly secured.

The Edison system supplies lamps of 4, 6, 8, 10, 13, 16, 20, 24, 32, 50, 100, 150 and 250 candle power, which can be used



DESK LAMP.

at any point throughout the same circuit. This great variety of illuminating power and interchangeability of lamps has never been offered or even attempted by anyone of the companies imitating the Edison system; but to the producers who sell the light, and to the customers who buy it, these are some of the important factors of commercial success, and are advantages readily appreciated by every one who intelligently considers the problem of artificial lighting.

They make the light popular, and as these manifold advantages are especially appreciated by each individual user, the light becomes to all a necessity rather than a luxury, and, once adopted, it is seldom abandoned, however the user may view its cost as compared with other illuminants.

In the case of the electric light, nothing is sent into the house but energy, whereby the light is produced, and a very small amount of heat, about  $6\frac{1}{2}$  per cent., as compared with the

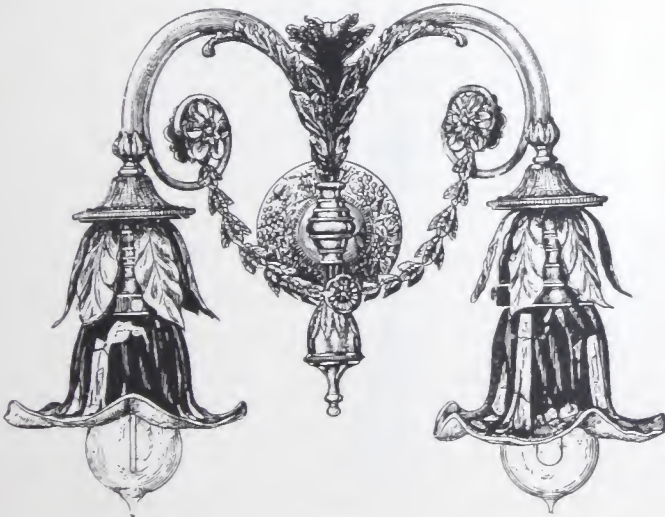
amount of light. It does not flicker; it does not vitiate the atmosphere; it shows colors in their natural hues, and does not hurt the eye.

## ADVANTAGES OF THE INCANDESCENT LIGHT.

THE Edison Incandescent Lamp is the refinement of artificial illumination. As a light for interiors it possesses the following advantages :

**PURITY AND CLEANLINESS.** The light-giving filament being encased in an air-tight glass globe, there is no consumption of oxygen; it cannot therefore vitiate the air of a room. It produces neither soot, dirt nor gases of any kind, and consequently does not effect a deposit upon ceilings or decorations, or tarnish silver or other metals.

**COMFORT.** In a given candle power, the heat given off is



one-twentieth part that given by gas, and about one-fortieth that given off by tallow candles. In fact, so little heat emanates

from it, that six inches from the lamp the heat is not perceptible, and the lamp itself may be safely touched by the hand.

**SAFETY.** The Edison system of incandescent electric lighting has established a world-wide reputation for safety. This vital desideratum is secured by the low electrical pressure of the current employed, the mechanical and electrical perfection of the appliances and fittings, and by having all work done by experienced workmen of proved reliability.

By virtue of these advantages it is being generally adopted for use in many places where artificial light of any kind has heretofore been forbidden, such as stables, refrigerating rooms, or where fire risks are great.

**BEAUTY AND DECORATIVE EFFECT.** An incandescent lamp, being in itself an artistic object, requires no external



ornamentation. It readily lends itself to purposes of decoration, as its natural symmetry of form, together with the great variety



of colors in which the globes may be made, admirably fit it to harmonize with every conceivable style of interior or exterior finish, foliage or drapery.

**CONVENIENCE.** The light can be applied more directly and efficiently than any other, as the lamps, being inverted, do not permit their supports to cast downward shadows, while the whole of the light is concentrated where it is most needed, and, as the lamps give little heat and no flame, they can be used in positions where no other form of light could be placed.

The ability to light or extinguish a lamp at any time from a point at a distance from the lamp is a feature of no small importance. A cellar, garret, passage-way or room may be lighted before entering, and the light extinguished after leaving; while the wires carrying the current can be run without difficulty in any building. The lamps can be hung at different heights from the floor, suspended from the ceiling merely by their own conducting wires, or they can be fixed in the ceiling itself.

They are not affected by draughts of air or by moisture, and will burn, if required, under water.

If a dim light is desired in an apartment at night, it may be had, or a switch may be placed at the bedside by means of which the room can be fully lighted, at any time, in an instant.

**ECONOMY.** The actual cost of the Edison light will not be found to vary much, if any, from that of gas; while the saving in the items of depreciation in decorations, pictures, metal wares, and the consequent saving of labor, will, in many cases, exceed the actual amount of the cost of the electric light.

In dwelling houses, all of the advantages of the system are brought out more strongly than in any other class of illumination, as its cleanliness and all other sanitary virtues are there brought into more striking contrast with gas and kerosene than elsewhere.

The convenience and luxury of properly placed switches for

the instantaneous lighting and extinguishment of the light are held in the highest appreciation in the household; while its beauty and simplicity are most keenly appreciated by all. Thus, while acknowledged the best light for general use, it is pronounced by all who have used it, the perfect and ideal light for our homes.



In a paper read before the Association of Edison Illuminating Companies by Mr. W. S. Howell, wherein the matter of dwell-

ing house illumination was most exhaustively treated, he says:

"As we enter the door we turn a switch close at hand and immediately the hall is lighted; another switch placed in a convenient position at the parlor door controls the chandelier. The dining room is lighted in the same convenient manner, and from the dining room the kitchen lamp is controlled. A switch at the head of the stairway lights the cellar and enables one to go into the coal vaults without a candle and its usual provoking episodes. The lamp over the back porch is serviceable in case of intrusions of man or beast at night, in which event the ever ready switch casts confusion on the trespasser, and light on his doings, serving as a protection at a very slight cost. Such lamps are of use every night in winter, and are worth many times their cost.

"Returning to the parlor, we extinguish each lamp as we pass its switch, leaving the rooms behind us in darkness.

"Wishing to go upstairs, we turn the key of a switch, which lights the lamp in the second story hall, and when we have reached the landing, we put out the lamp below by means of a second switch.

"Inside each bedroom hangs a switch on a flexible cord, press the button and the room is lighted. The cord is long enough to reach the head of the bed, so we hang the switch on a brass hook on the head board, and it is in easy reach from the bed, ready for use at any time of night.

"As we go out into the hall, we hang the switch on its hook at the side of the door where we can reach it as we come back, and, pressing the button, the room is dark.

"So each room is inspected, and the convenience and economy of switches made manifest. The light is in use only when needed.

"We go and come without loss of time or patience,—having plenty of light, far more than with lamp or candle, with per-



fect convenience, even luxury, and what does it cost? What is it worth? The **COST** is next to nothing; the **LUXURY** is worth a thousand times the cost. It is this luxury and convenience which makes **OUR** light popular, which holds our customers and gains us others.

"Who considers the cost of such luxuries at so small a price? Luxurious conveniences soon transform themselves into necessities, and men are heard to say that the Edison light is cheap at four times the cost of gas.

"Good fixtures placed in dwellings add far more to the effect and beauty of the light than to the cost of fitting up. Select fixtures of a simple design or good finish, and rather put six lamps of 10 C. P. in a drawing room than two 32 C. P. lamps; the effect is so much better, and the economy is greater. Over the dining table put a two or four light fixture (according to size of room and customer's bank account) one of the new style attachments with a 10-inch porcelain dome shade. The same attachment and shade on a No. 5 pendant makes a very effective toilet lamp if placed over the centre of bureau or dressing case.

"A very great convenience in bedrooms is obtained at slight expense by placing a small coiled filament night lamp in an ordinary illuminated clock, with switch at the side of the bed. This will indicate the time at night, and answer as a night lamp. We have customers using night clocks; others employ the lamps as foot warmers, which they put into their beds in winter, and a hundred other conveniences might be noted.

The Edison light has thus been shown to be suitable for all uses. Its characteristics are those of daylight. In steadiness, it is only comparable to the light of the sun.

## THE DISADVANTAGES OF GAS-LIGHT.

AS compared with the incandescent electric light, Mr. Edison gives the following views on the existing system of gas lighting :

“Gas is a barbarous and wasteful light. The distribution of gas through a city is done by means of an immense system of sewerage pipe, through which it is forced and kept under pressure—a gas reeking with impure material and made by a dozen different processes. This gas is allowed to escape through holes into our apartments, where it is burnt, taking oxygen from the air to support combustion, the products of which are carbonic acid, carbonic oxide, sulphuric acid, sulphuretted hydrogen, and a host of other substances which vitiate the atmosphere. It thus gives  $98\frac{1}{2}$  per cent. more heat than light ; in fact, the result of the vile poison is almost entirely heat, and only incidentally a little light. It is a yellow light, too, and far removed from the color of natural light, and it is charged for by quantity and not by quality, for it is passed through meters which measure the QUANTITY and not the QUALITY of the light—certainly a wrong system. At the source of supply the crude material from which this gas is made, namely, the coal, is passed through a distillation process, by which it is liberated from the other constituents of the coal, more or less imperfectly. It is then stowed in the *gasometer* ready for distribution. This is one half the process. The other and final portion of the process takes place in our sitting and bed rooms, much to the detriment of our health, our sight and our household effects. In other words, matter is sent into dwellings for the ostensible purpose of producing light, whereas its main product is heat.”

Increase of light by gas only increases the heating and

vitiation of the air, causing intense headache and difficulty of respiration. Increase of light by incandescence, up to the extent of full sunlight, as has been amply proven many times by careful experiment, is not only accompanied by no injurious effects, but has been found beneficial to health and spirits.

The following culled from the "New York Herald" of May 2d, 1887, will give some idea of the peculiar methods adopted by the gas companies to meet the demands for better quality of light:

As announced in the "Herald's" elaborate exposé several weeks ago, the gas companies have absolutely set at defiance the law passed a year ago which reduced the price from \$1.75 to \$1.25 for a thousand cubic feet of twenty candle-power gas.

When it was known that the Legislature had, after patient investigation and prolonged discussion, prohibited the gas companies from charging more than \$1.25 for a thousand feet, there was general rejoicing, especially among very poor families who could scantily afford the luxury of gas, and among people in whose business expenses the item of gas figured largely.

But hardly had the law passed when every gas company in New York put a powerful pressure on its mains.

The result was very simple.

By increased pressure, the companies forced enough gas through the meters to make up for the difference between the former price and the new price. In a large number of cases, pressure more than made up for the difference, and instead of having to pay less, the consumers had to pay more.

The proprietor of one of the largest hotels on Broadway above Twenty-third street consented to compare his bills. Here is the extraordinary result:

March, 1886, when gas was \$1.75 a thousand feet, 243,000 cubic feet, \$364.50



March, 1887, when gas was \$1.25 a thousand feet, 349,300 cubic feet, \$436.75.

Another outrage was discovered by the reporter in the case of a large dry goods house on Eighth Avenue. To appreciate the figures, it must be understood that the same number of burners were used for the same number of hours, in the corresponding months of the two years :

January, 1886, at \$1.75 a thousand feet..	.....	362,900 feet.
“ 1887, “ 1.25 “ “	.....	414,500 “

---

Increase through pressure for one month.....51,600 “

Here is another sample from the same establishment :

February, 1886, at \$1.75 a thousand feet.....	313,900 feet
“ 1887, “ 1.25 “ “	.... 347,200 “

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Increase through pressure for one month.....33,300 “

The more pressure put on the pipes the less light is given at the burner. Dr. Walter M. Jackson, a famous gas expert, told a “Herald” reporter that in order to burn all the gas that passes through an ordinary Scotch burner it should not be given a greater pressure than two-tenths of an inch. The ordinary day pressure on gas mains in New York as shown by a pressure gauge is one inch and a-half. This pressure gains a tenth of an inch for every twelve feet in height, counting the floor space, so that if the pressure is an inch and a-half on the ground floor it is a tenth of an inch greater on each successive floor.

Dr. Jackson said that under two inches of pressure a burner would consume more than twice as much gas, and give less light, than if the pressure was only half an inch.

The following are some exact scientific tests, showing that under increased pressure a great deal of gas is consumed, but the light given lessens in proportion. Not only does a man have to pay more, but he actually gets less. These figures were obtained by actual experiments upon the two common

forms of burners in use, with the two kinds of gas sold in New York. The pressure gauge, test meter and photometer used were instruments of the finest make.

FIVE-FOOT SCOTCH TIP—COAL GAS.

CONSUMPTION.	METER PRESSURE.	OBSERVED CANDLE POWER	CORRECTED CANDLE POWER	CANDLES PER FOOT.
4.75	.50	2.98	3.15	.66
6.30	1.00	3.04	3.19	.50
7.85	1.50	2.80	3.10	.39
8.90	2.00	3.06	3.33	.37
9.90	2.50	3.15	3.04	.30
10.85	3.00	3.00	3.00	.27

FIVE-FOOT SCOTCH TIP—WATER GAS.

CONSUMPTION.	METER PRESSURE.	OBSERVED CANDLE POWER	CORRECTED CANDLE POWER	CANDLES PER FOOT.
3.75	.50	9.92	10.51	2.80
5.10	1.00	11.52	12.55	2.46
6.40	1.50	8.96	9.64	1.50
7.15	2.00	9.04	9.40	1.31
8.05	2.50	8.92	9.00	1.11
9.10	3.00	11.56	11.79	1.29

A glance at these figures tells the story. The man is robbed of his money and deprived of his light.

But this is not all. The consumer has to pay for twice as much gas as he can burn, and gets less illumination than if he was paying for one-half the quantity. In addition to this the atmosphere he breathes is poisoned.

When a man sits down at home in the evening and sees his gas burning in sharp, pointed shapes like fiery maple leaves, he

may be well enough informed to know that the big blue patch in the middle of each flame means so much loss to him and so much profit to the gas company.

But the chances are, it never occurs to him that there is something beyond a mere waste of money involved in the excessive pressure put on the gas pipes by greedy corporations—a something which the Board of Health may yet find worthy of careful attention.

#### DISADVANTAGES OF GAS NOT FOUND IN THE EDISON INCANDESCENT ELECTRIC LIGHT.

Sulphur thrown off,	Sulphuretted hydrogen thrown off,
Ammonia thrown off,	Atmosphere vitiated,
Oxygen consumed,	Colors unnatural,
Air consumed,	Heat produced,
Unsteadiness of light,	Danger from leaks in pipes,
Danger from suffocation,	Danger from fires,
Danger from use of matches,	Blackening of ceilings and deco-
Expense from leaks in pipes,	rations,
Metals tarnished,	Freezing of pipes,
Carbonic acid thrown off.	Water and air in pipes.

Are you not required to burn double the quantity that you would otherwise consume provided you secured the full illuminating effect? Do you not consume double the oxygen, and give not only double the normal products of combustion, but a great mass of abnormal products of combustion, among which is the deadly, odorless, colorless, carbon-monoxide, the latter an exclusive product of imperfect combustion? Do you not pay for double the number of cubic feet of gas necessary, because you convert half your possible light into deadly, obnoxious things to pollute the atmosphere you breathe?

You certainly do these things. Can you tell the baneful effect upon your household of this pollution of the atmosphere?

Can your physician swear that it is not concerned in promoting



low conditions of vitality, inviting typhus, malarial, diphtheritic and other zymotic conditions of a malignant character?

The normal products of combustion are bad enough, but, coupled with the abnormal, there is every reason in a sanitary and pecuniary sense why we should use every effort to correct the terrible error."

While comparisons with gas are interesting, practical experience affords daily evidence of the fact that as an illuminating agent it is being gradually but surely displaced by the Edison system of electric lighting.

The price of gas has no more influence on the price of our light than the price of candles has on the price of kerosene. On the same principle, it is difficult to demonstrate THEORETICALLY why the advent of elevated railways, with their enormous patronage, has not done away with the surface cars; and yet the fact remains that there is patronage for both, and both are financially successful.

The fundamental principle is this: People have continued the use of gas while the price of kerosene has been constantly declining, simply because of the superiority and greater convenience of gas, and for the same reason they will continue the use of the incandescent light, notwithstanding any reduction experimenters may accomplish in the cost of producing gas. The possible uses of gas produced at a low cost will cover a broad field, but, as an illuminating agent, its usefulness is now limited by the advent of a light as superior to gas as gas is to its predecessors.

IMPORTANT MATTERS FOR THOSE WHO CONTEMPLATE  
THE INTRODUCTION OF THE

EDISON INCANDESCENT . . . .  
. . . . ELECTRIC LIGHT.

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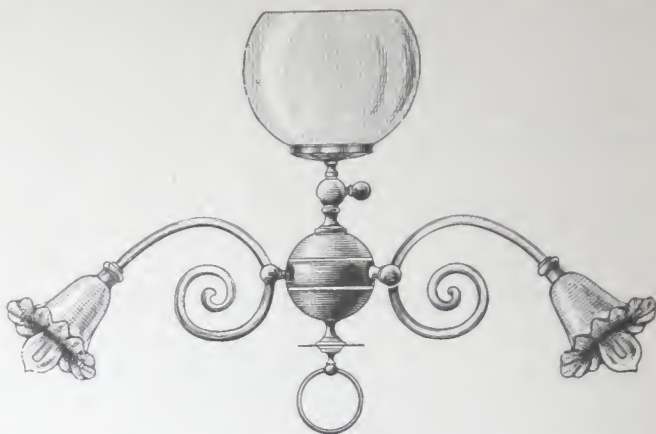
HAVING thus reviewed the advantages of the Edison Incandescent Electric Light, it becomes important for the citizens of this community to know that The Edison Electric Illuminating Company, of this city, is prepared to supply the incandescent light in such quantity as consumers desire, and at all times, day or night.

By common usage a sixteen candle lamp has come to be considered the average or standard size. The cost of burning one of these sixteen-candle lamps one hour to the consumer, at the prices fixed by this Company, will not compare unfavorably with the cost of gas for the same volume of light, and as the light is free from heat, smoke, flicker and other objectionable features already mentioned, and possesses numerous other advantages, it has been considered by consumers generally to be a cheaper light than gas.

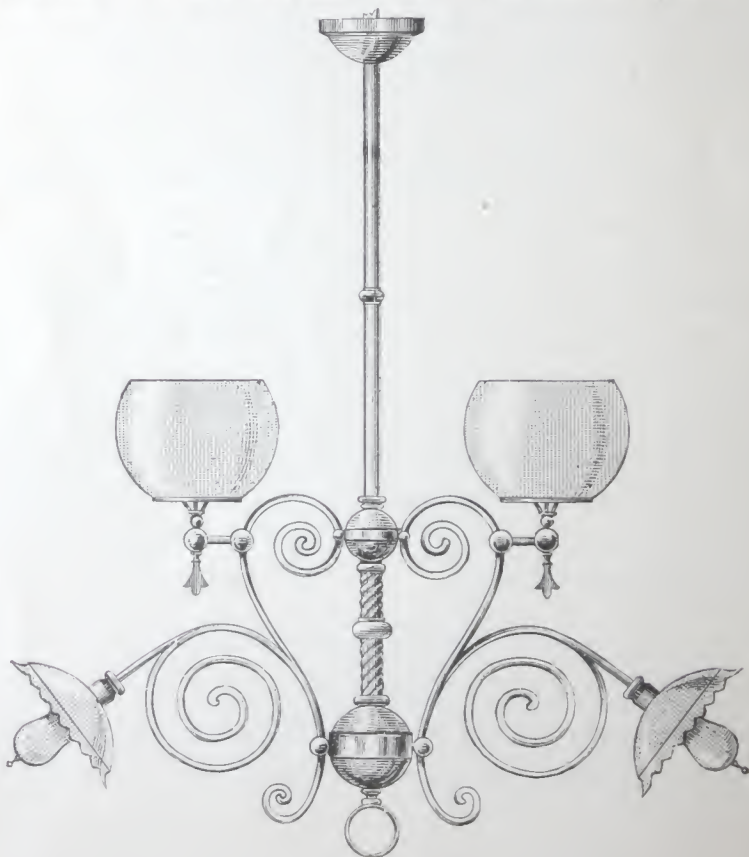
FIXTURES AND LAMP SUPPORTS.

In these the styles are innumerable, ranging all the way from a plain flexible conductor from which the lamp and socket are suspended, through all styles of ornamentation into elaborate

and elegant designs, specially adapted for each particular room, hall, or other location, producing effects not possible with gas fixtures.



*While we recommend fixtures specially constructed for and adapted to the incandescent light, it is*





practicable to *Wire Existing Gas Fixtures*, or supply new *Combination Fixtures*, on which can be used electric light or gas, or both.

Each special case can be treated as best suits the taste, requirements and the amount the customer wishes to invest.

To those who desire more detailed information on these matters we suggest a visit to our show rooms, where we will at all times be pleased to exhibit and explain the various styles of fixtures, or we will, on application, have a salesman call with an illustrated catalogue in which many designs can be seen, and selections made therefrom.

ORNAMENTAL LAMPS in ground glass, and in various attractive colors for floral designs, decorative work, special illuminations, etc., can be secured at slight extra cost.

#### SERVICES TO HOUSES.

This Company, upon application, will put in services to the premises of consumers, and furnish and attach meters in cellars free of charge.

#### WIRING.

The wiring of the interior of buildings for electric light should be done by wiremen of undoubted experience and reliability, and the current should never be turned on, or the contractor paid in full, until it has been thoroughly inspected, and approved by this Company. The Edison current is so mild that there is no possible danger to life or limb under any conditions.

Safety fuses are inserted at all branches and starting points, and the proper sizes of all wires are carefully calculated by us, so that if the Edison system as perfected is adhered to, the SAFETY IS GREATER than with any other form of illumination known.

These statements do not apply to the unsatisfactory and unsafe methods of wiring frequently used by inexperienced or careless wiring contractors employing incompetent workmen, and using poor material; therefore it is advisable for parties contemplating the introduction of our light to ascertain from this Company the names and addresses of responsible and experienced wiring firms, as we are directly interested in protecting our customers from exorbitant prices, or bad workmanship.

The absolute safety to life, limb and property that is found in the Edison System is not found in any other system of lighting where currents of greater pressure are used.

#### ELECTRIC MOTORS.

A small motor at trifling cost will run a sewing machine. A slightly larger one will drive a fan in summer. Elevators can be run with from three to twenty horse-power motors, with vastly greater convenience than the present small steam engine and boiler, and at a less cost, and with absolutely no dirt and little attention. Shops of any size can readily and economically be run by electric motors, estimates for the cost of which we will be glad to furnish.

#### APPLICATIONS.

Parties desiring to use electric light or power will, we believe, find it to their advantage and convenience to file their applications with us at an early date, as oftentimes the force of wiremen are so pushed that orders must of necessity be delayed.

*For further information please communicate with the company, whose address will be found on the outside page of cover.*





E. H. JOHNSON,  
*President.*

F. S. HASTINGS,  
*Sec'y & Treas.*

EDISON  
*Electric Light Co.*

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GENERAL OFFICES:

→\* 16 & 18, BROAD STREET, \*←

NEW YORK CITY.

J. H. VAIL,  
*General Superintendent.*

J. H. McCLEMENT,  
*Compt'lr.*

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